Available online on 15.10.2019 at http://jddtonline.info

Journal of Drug Delivery and Therapeutics

Open Access to Pharmaceutical and Medical Research

Open Access Research Article

Analysis of the Use of Acid Suppressing Medications in Hospitalized Children in a Pediatric General Ward

Dr. Puja*, Dr. D.C. Dhasmana, Dr. Saurabh Kohli, Dr. Vipin Chander

Department of Pharmacology, Himalayan Institute of Medical Sciences, Swami Ram Himalayan University, Doiwala, Dehradun, India

ABSTRACT

Background: Acid suppressants have been commonly prescribed in children and their efficacy and safety are under the lens. This observational study was envisaged to study the prevalence and pattern of use of acid suppressants in hospitalized children in pediatric general ward.

Methods: 120 patients were included in the study. WHO indicators for rationality was used. Descriptive statistics was used to present the data i.e. percentage; proportions, frequency, mean and standard deviation using Microsoft excel worksheet.

Results: 83 out of 120 patients received an acid suppressant. The most commonly prescribed acid suppressants was ranitidine. Proton pump inhibitors were also routinely prescribed.

Keywords: acid suppressants, hospitalized children.

Article Info: Received 18 July 2019; Review Completed 15 Aug 2019; Accepted 24 Aug 2019; Available online 15 Oct 2019

Cite this article as:

Puja, Dhasmana DC, Kohli S, Chander V, Analysis of the Use of Acid Suppressing Medications in Hospitalized Children in a Pediatric General Ward, Journal of Drug Delivery and Therapeutics. 2019; 9(5-s):50-52
http://dx.doi.org/10.22270/jddt.v9i5-s.3636

***Address for Correspondence:**

Dr. Puja, Department of Pharmacology, Himalayan Institute of Medical Sciences, Swami Ram Himalayan University, Doiwala, Dehradun, India

INTRODUCTION:

Acid-suppressing medications are used extensively in term and preterm newborns despite limited efficacy data and increasing evidence for potential harm. Use of acid suppressants is very common even in hospitalized children and not just limited to NICUs. They are routinely prescribed even with limited safety and efficacy data. Non-indicated use of H2 blockers and proton pump inhibitors in hospitalized children is very rampant. Although benefits of acid suppression in infancy seem increasingly unlikely, adverse effects from PPI/H2 blockers treatment are now well documented (1,2) . Reduced gastric acidity, alteration of the gut microbiome and interference with neutrophil function result in increased risk of gastrointestinal infections in term infants and necrotizing enterocolitis in preterm infants. Treatment increases rates of community-acquired pneumonia even in healthy infants in the outpatient setting and is associated with ventilator-associated pneumonia in the PICU and late onset sepsis in the NICU. Gastric pH changes impede calcium absorption with potentially harmful effects on bone development and increased risk of fractures. Adverse effects are of particular concern for neonates and premature infants, whose relative liver immaturity may result in delayed drug metabolism(1-3).

Although there are concerns over use of acid suppressing medications in term and preterm newborns with limited evidence of efficacy and documentation of adverse effects the use of acid suppressants rather non indicated use of acid suppressants in children has not been much talked about. In this study we have analysed the use of acid suppressing medications in hospitalized children in a pediatric general ward at a tertiary care teaching hospital in north India.

MATERIALS AND METHODS:

This observational cross-sectional study was carried out in Himalayan Institute of Medical Sciences, Swami Ram Nagar, Dehradun, in the Department of Pharmacology and the Department of Pediatrics over a period of twelve months after obtaining ethical clearance from the Institutional Ethics Committee .

Sample size:

A total of 120 patients admitted in the pediatric general ward were included in the study.

Inclusion criteria

Patients less than 18 years of age admitted in pediatric general ward with minimum 5 days of stay in the hospital.

Exclusion criteria

1.Oncological patients and those with chronic diseases

3. Patients admitted in pediatric or neonatal intensive care

Study tools

Patient case recording form

Summary of product /drug monogram

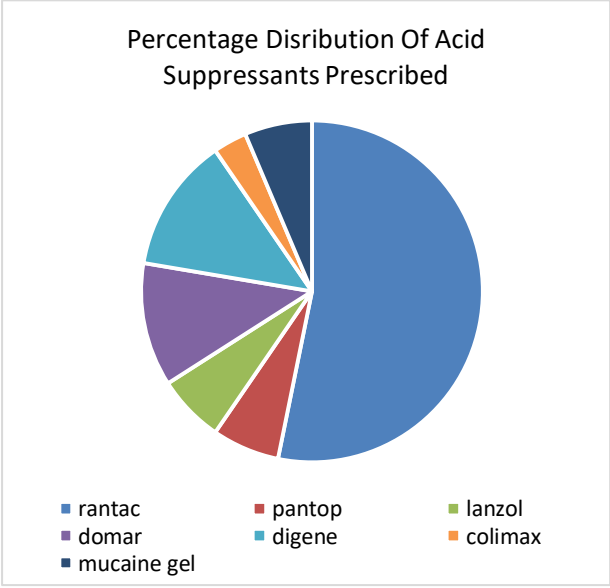
Study protocol

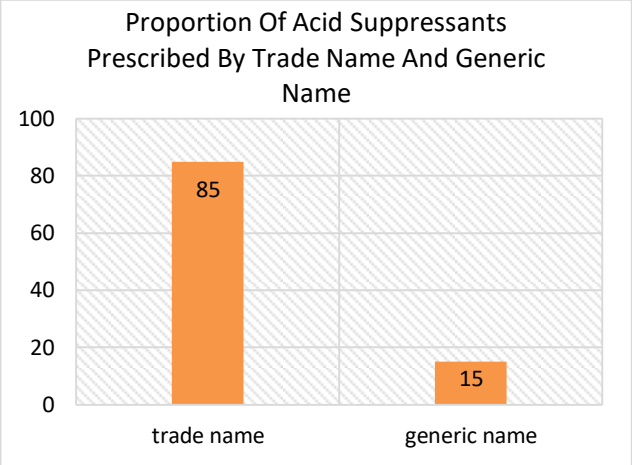
Patient details (age, weight, anthropometric measurements), prescription drug details(indication, dose, frequency) and other relevant information were recorded as per the case recording form after obtaining written informed consent from parent/legal guardian and assent from school going children.

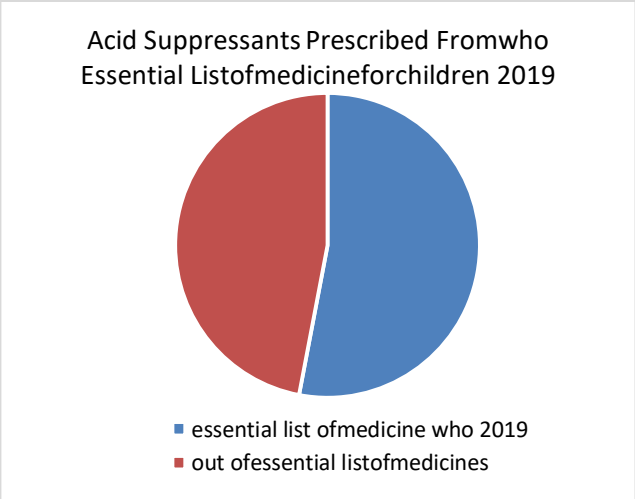
Data Management and Statistical Analysis

Descriptive statistics were used to present the data i.e. percentage; proportions, frequency, mean and standard deviation using Microsoft excel worksheet

Result: Out of 120 patients 83 received an acid suppressant. Out of 791 drugs prescribed to the total 120 patients 94 acid suppressants were prescribed. Most commonly prescribed acid suppressant was ranitidine followed by combination of magnesium hydroxide, simethicone, sodium carboxymethylcellulose, aluminium hydroxide and close third was combination of simethicone and magaldrate. About 85percent of the acid suppressants were prescribed by trade name. Out of the 83 patients who were prescribed acid suppressants 11 were prescribed more than one acid suppressants. 53percent of the acid suppressants prescribed was from WHO Essential List of Medicine for Children 2019. 39 percent of the acid suppressants were prescibed by parenteral route. About 10% of the total patients were prescribed off-label proton pump inhibitors (pantoprazole and lansoprazole). for which their product label mentions that safety and efficacy has not been established in children.







DISCUSSION

In our study the acid lowering agents were 11.3% which is higher than 4.4% observed in other similar study from Nepal and 3.1% in other similar study from pediatric general wardin five different countries but similar to 9.4% in a similar study from south india, the reason for this observation may be due to the etiology of the disease for which the patient were admitted s(4-7). In our study 85% of the acid suppressants were prescribed by trade name which is higher from other similar studies. In this study 53% of the acid suppressants were from WHO essential list of medicine. In other similar studies these analysis for acid suppressants was not done for these class of drugs specifically.

In our study the most commonly prescribed acid suppressant used was ranitidine and the recent issue about its safety is a matter of great concern as it is commonly prescribed to children. About 10% of the total patients were prescribed off-label proton pump inhibitors (pantoprazole and lansoprazole) as their product label mentions that safety and efficacy has not been established in children. There are increasing evidence that they may affect bone growth, immunity and affect response to allergens.

CONCLUSION:

Findings of this study emphasizes the need of rational prescribing and also underlines that the need of the hour is to provide safe and effective medicine for our children and not treat them as mere miniature adults.

Conflict of Interest: None

Acknowledgement: We would like to thank the constant motivation behind us Mr Shambhu Shankar. We would also like to thank the staff and patients who were involved in this study for their cooperation

Funding: None

REFERENCES

1. Marta Tavares, Eunice Trindade, Jorge Amil Dias. Effects of long term proton pump inhibitors use in pediatrics. Int J Gastroenterol Hepatol Transpl Nutr 2016; 1(1):48-54.
2. Mitre E, et al. Acid-suppressor, antibiotic use in infancy tied to later allergic disease. JAMA Pediatr. 2018; doi:10.1001/jamapediatrics.2018.0315.
3. Romano C, Chiaro A, Comito D, Loddo I, Ferrau V. Proton pump inhibitors in pediatrics: evaluation of efficacy in GERD therapy. Curr Clin Pharmacol. 2011; 6(1):41-7.
4. Neha et.al.: Prescription auditing and drug utilization pattern in indoor patients of pediatrics department., Int J Cur Res Rev, 2016; 8(23):39-46
5. Senthilselvi R., M. Boopana L. Sathyan P. Visuvasam, V. Ganesan. "Drug Utilization Pattern in Paediatric Patients in A Secondary Care Hospital". *International Journal of Pharmacy and Pharmaceutical Sciences*, 2019; 11(4):69-74.
6. Rashed AN, Ian C. K. Wong, Lynda Wilton, Stephen Tomlin, and Antje Neubert. Drug Utilisation Patterns in Children Admitted to a Paediatric General Medical Ward in Five Countries. Drugs Real World Outcomes. 2015; 2(4):397–410
7. Shankar P R, Upadhyay D K, Subish P, Dubey A K, Mishra P, Prescribing patterns among paediatric inpatients in a teaching hospital in western Nepal, Singapore Med J 2006; 47(4):261